

Health Consultation

Oeser Company Whatcom County, Washington

June 30, 1999

**Prepared by
The Washington State Department of Health
Under a Cooperative Agreement with the
Agency for Toxic Substances and Disease Registry**



FOREWORD

The Washington State Department of Health (DOH) has prepared this Health Consultation in cooperation with

the Agency for Toxic Substances and Disease Registry (ATSDR). ATSDR is part of the U.S. Department of Health and Human Services and is the principal federal public health agency responsible for health issues related to hazardous waste. This Health Consultation was prepared in accordance with methodologies and guidelines developed by ATSDR.

The purpose of this Health Consultation is to identify and prevent harmful human health effects resulting from exposure to hazardous substances in the environment. The Health Consultation allows DOH to respond quickly to a request from concerned residents for health information on hazardous substances. It provides advice on specific public health issues. DOH evaluates sampling data collected from a hazardous waste site, determines whether exposures have occurred or could occur, reports any potential harmful effects, and recommends actions to protect public health.

For additional information or questions regarding DOH, ATSDR or the contents of this Health Consultation, please call the Health Advisor who prepared this document:

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BACKGROUND AND STATEMENT OF ISSUES

The United States Environmental Protection Agency (EPA), Region 10, has asked the Washington State Department of Health (DOH) to review and provide feedback on the Remedial Investigation/Feasibility Study (RI/FS) Work Plan and draft Sampling Plan for the Oeser Company Superfund Site (TDD: 97-08-0007). This health consultation presents comments on the RI/FS and Sampling Plan. Particular attention is given to those aspects of the documents that address the protection of human health.

Site Background

The Oeser Company site encompasses approximately 24 acres in Whatcom County, Washington. A portion of this site exists within the city of Bellingham. The facility lies within areas zoned for mixed residential and industrial use. The facility is a wood-treatment plant that operates 24 hours a day, 5 days a week. Weekend operations occur during periods of high activity. Creosote and pentachlorophenol (PCP) were highly used at this facility until the mid 1980s. Since that time, PCP has become the only wood preservative used at this site. PCP is currently used as a 5% solution in oil. Beginning in 1987, multiple facility investigations and site assessments have been conducted at this site. Based upon the contamination found at the site (PCP, polyaromatic hydrocarbons (PAHs), and dioxins) the Oeser Company site was added to the National Priorities List (NPL) in 1997. Interim site remedial actions have been completed at this site and EPA's Superfund Technical Assessment and Response Team (START) is overseeing a RI/FS that will begin in May 1999.

DISCUSSION

The work plans addressing the RI/FS at the Oeser Company Site are quite comprehensive. The documents reviewed included: the RI/FS Work Plan, the RI/FS Field Sampling Plan, the Sampling and Quality Assurance Plan for Quarterly Groundwater Monitoring, and the Sampling and Quality Assurance Plan Off-Facility Residential and Background Surface Soil Sampling.

The potential exposure and transport pathways for the contaminants of potential concern (COPC) are thoroughly addressed. Sampling plans include extensive monitoring to help further characterize the extent of contamination on-site and in off-site areas, including the Little Squalicum Creek and residential areas. Particular attention is given to identifying PAHs, metals, petroleum hydrocarbons, PCP, and dioxins/furans which have been shown to exceed health based screening values at certain on and off-site locations. Specific emphasis has also been given to identifying areas where the present data is insufficient and designing sampling plans that will provide the data necessary to fill the current knowledge gaps.

CONCLUSIONS

The Washington DOH is confident that, with slight modifications, the reviewed Oeser Company Site RI/FS Work Plans and associated Sampling Plans will sufficiently address human health concerns both on and off-site. The procedures that will be used to quantitate the risks to human health have been well defined and the various cleanup options that will be considered have also been defined. There are specific concerns that we would like to see addressed before the sampling and monitoring programs begin and our recommendations for addressing these concerns are given in the following section.

RECOMMENDATIONS

This section will address specific comments and recommendations for changes to the Oeser Company Site RI/FS and associated Sampling Plans.

Remedial Investigation/Feasibility Study:

- 1. East Treatment Area:** The interim removal action levels for PCP and PAHs (50 parts per million (ppm) and 80 ppm, respectively) are not protective of human health and should be lowered. Initial evaluation and removal activities, based on Scenario 2 of Option 5 from the May 15, 1997, Engineering Options Analysis (E&E, 1997) specified the removal of soil with PCP levels greater than 50 ppm in the former drywell and gravel infiltration bed areas of the East Treatment area (section 3.2.1). The Model Toxics Control Act (MTCA) B standard for PCP in soil is 8.3 ppm, the EPA risk-based industrial standard is 15 ppm and the CREG (cancer risk evaluation guideline, determined by ATSDR) is 6 ppm. Although a large area was excavated, to obtain the maximum protection of human health (industrial or residential), we recommend the use of a lower screening value for future excavations. The levels of PCP and PAHs that remain in the soil are still above health based screening values. Similarly, there could be areas where the PCP levels are above a health based screening value but below 50 ppm. These areas still need to be remediated to be protective of human health. Similar cleanup levels were determined for the West Treatment area as well (sec. 3.2.2). Again, the soil screening levels should be lower to be protective of human health.

As mentioned in section 3.3.1.1.1, the presence or absence of contamination in the small grassy area south of the building shop needs to be determined.

- 2. West Treatment Area:** In section 3.2.2 of the RI/FS the last paragraph refers to the assessment activities in the West Treatment area. The incongruencies in the analytical results from soil samples and monitoring wells should be further examined through additional characterization of the contamination east and north of the PCP enclosure. These areas are suggested sources of contamination but, in this section, the further sampling plans are unclear.

In the last sentence of the same paragraph, it is unclear as to what is meant by “*a significant removable soil source has not been identified.*” Does significant refer to the level of contamination, or the size of the contaminated area? Any soil that contains contaminants above a health based screening value should be remediated to eliminate the contamination.

Unless it is completely paved, surface soil samples should be collected in the West Treatment Area. As per section, 3.3.1.1.2, no surface soil samples have been collected from this area to date and the extent of PCP/PAH and dioxin/furan contamination has not been determined.

Why is no subsurface sampling being performed in the West Treatment Area (sec. 5.5.1)? Subsurface contamination has been seen in this area in the past. PAHs, metals, dioxins, and PCPs have been detected at levels above screening values.

3. **North Treatment Area:** Further investigation is required to better characterize contamination (dioxins and TPH) in the North Treatment Area. Although asphalt and gravel caps were placed over soils east of the retort (3.2.3), contamination levels in other unpaved regions of the North Treatment Area need to be examined. Section 3.3.1.1 states that there are exposed soils with moderately high concentrations of dioxins and furans in the region. These areas should be remediated to eliminate potential exposures. Furthermore, the section also states that “*no surface soils collected from this area have been analyzed for inorganic constituents.*” This characterization should be conducted, especially since metal contamination has been detected in other on-site areas.
4. In the discussion regarding site characteristics/contaminant migration (sec. 3.3.1.1.1), the last sentence states that “*the permeability of current site caps has not been evaluated.*” When future caps are applied, it would be helpful if the permeability was known, thus infiltration will not be yet another unknown that will need to be considered.
5. **Wood Storage Area:** Samples in the Wood Storage Area should be analyzed for dioxins/furans.
6. **North and South Pole Yards:** The extent of dioxin/furan and inorganic contamination needs to be further characterized in the North Pole Yard. In the South Pole Yard, most of the area is capped, but the North Pole Yard is uncapped and remains as a potential exposure source.

Section 5.5.1 states that subsurface contamination in the North and South Pole Yards is unlikely. According to section 3.3.1.2.3, no subsurface sampling has been done in the North Pole Yard, and some samples from the South Pole Yard were rejected in Quality Assurance/Quality Control (QA/QC) review. In surface soil, the extent of contamination in both these areas is still undetermined (sec. 3.3.1.1.2). Why is the statement made that contamination is unlikely, if contaminant levels have never been determined? A similar statement is made for the North Treatment Area. ‘Not determined’ does not imply non-existent. Samples should be analyzed for PAHs, Semi-volatile Organic Compounds (SVOCs), dioxins/furans, total petroleum hydrocarbons (TPHs), and metals.

7. In section 3.3.2, when discussing groundwater contamination, PCP and PAH comparisons are made using the Federal Maximum Contaminant Levels (MCLs.) To be protective of human health, the state MTCA B levels should be used as a screening value for cleanup standards and risk analysis. The MTCA values are lower and provide increased protection of human health.
8. Have dioxin levels in Little Squalicum Creek been characterized? If not, this analysis should be conducted for both water and sediment.
9. In discussing data gaps for air releases (sec. 3.3.4.5), please be sure to include off-facility, specifically residential, air monitoring for dioxins/furans.
10. In section 3.5.1.1, in discussing the Little Squalicum Creek, it is stated that “*risk to human health is low because human contact with the creek sediment is infrequent.*” Toxicity is determined by both dose and exposure. If the levels of contamination in the creek sediments are high, then infrequent or rare exposures can result in adverse health effects. Because exposure is infrequent, this route of exposure should not be discounted. As the creek may be turned into a park, further characterization of creek sediments, including dioxin/furan monitoring, should be conducted.
11. In the Preliminary Human Health Conceptual Site Model, Figure 3-26, many pathways are considered to be complete but minor and evaluation in the baseline risk assessment is not considered. As mentioned above, these pathways should not be discounted until there is full characterization of the contamination present. Recreational user exposure to sediments and water in the Little Squalicum creek should certainly be considered, as should residential exposures to off-facility soils, dust and air. Section 5.11.1.4.1.1 identifies recreational use of the creek area. Similarly completed exposure pathways for workers should not be considered minor until further contaminant analysis is conducted. All completed exposure pathways should be fully assessed for potential human health effects.
12. In discussion of field investigations of the Little Squalicum Creek Area (sec. 4.2.3), it is stated that “*Site-related contaminants are expected to bind preferentially to sediment; therefore, no surface water samples will be collected. Surface water data from the Expanded Site Investigation (ESI) will be used in the evaluation of human health and ecological risks.*” Although site related contaminants may partition into the sediment, this is not a reason to stop sampling contaminant levels in the creek water. There will still be contaminants in the creek surface water. These levels may be lower than soil levels, but they still may pose adverse health effects. Since there is stormwater drainage and Oeser Company outfall into the creek, it is important to monitor the effects this may have on the creek water, especially since there is potential exposure to recreational users. Monitoring creek water is also important since the creek feeds into other water streams (Bellingham Bay). Creek water should be monitored for SVOCs, metals, dioxins/furans, and EPH/VPH.
13. In Table 4-3, the listing of Preliminary Screening Levels, some of the values are incorrect. Under the Air category, some of the EPA Risk-Based Ambient Air values (derived from the

region 9 Preliminary Remediation Goals) appear to be off by an order of magnitude. Some of the errors noticed include: Acenaphthene should be 220 $\mu\text{g}/\text{m}^3$, not 22 $\mu\text{g}/\text{m}^3$; Fluorene should be 150 $\mu\text{g}/\text{m}^3$, not 15 $\mu\text{g}/\text{m}^3$; Napthalene should be 3.1 $\mu\text{g}/\text{m}^3$, not 0.31 $\mu\text{g}/\text{m}^3$; Pyrene should be 110 $\mu\text{g}/\text{m}^3$, not 11 $\mu\text{g}/\text{m}^3$; Styrene should be 1100 $\mu\text{g}/\text{m}^3$, not 110 $\mu\text{g}/\text{m}^3$; m- and o-xylene should both be 730 $\mu\text{g}/\text{m}^3$, not 73 $\mu\text{g}/\text{m}^3$, and dioxin should be 4.5e-08 $\mu\text{g}/\text{m}^3$ not 0 $\mu\text{g}/\text{m}^3$. Although these errors tend towards being more protective of human health, I have not checked every value and category in the table. There may be other errors that would lead to cleanups that are less protective of human health. Please check this table and make sure all the screening values are correct.

When using this table to determine cleanup values, to be protective of human health, we recommend using the most conservative screening value. Usually this means using a MTCA B or EPA value instead of a Federal MCL. When possible, for determining Applicable or Relevant and Appropriate Requirements (ARAR's) for soil cleanup, the use of Residential screening values, instead of industrial values, is recommended.

14. Table 4.4 lists the various remedial technologies that may be considered at the Oeser Company Superfund Site. Choosing the appropriate technology will depend upon the extent and type of contamination that is found at the site. The Washington DOH would like the opportunity to provide comments on the remediation options when the site is fully characterized.
15. **Residential Sampling Survey:** Figures 5.2 and 5.3 are very difficult to read and interpret. It would be helpful to explain how the background residences were chosen for sampling. Please make sure that the background sites chosen are appropriate and not impacted by other potential pollutants in the area. Phase 1 of the off-facility residential soil sampling states that only samples which have contaminants that exceed background contaminant levels will be compared to health based screening values. Unfortunately, often times background samples themselves may exceed health based screening values. This does not make them less of a risk for potential adverse health impacts. If a sample exceeds health base screening values, further samples should be collected and a risk analysis should be conducted, regardless of whether or not background levels are high. The potential risks to human health may still exist.
16. The analytical strategy for Off-site residential soil sampling (sec. 5.2.3) includes SVOCs, metals, and dioxins/furans. As petroleum hydrocarbons are a COPC at this site, TPH analysis should be conducted on soil samples. This analysis should include examination of both the volatile (VPH) and extractable fractions (EPH). VOC levels should also be determined in soil samples.
17. The analytical strategy for ambient air investigations (sec 5.3.3) should also include TPH analysis in addition to the SVOC, VOC, metal, and dioxin/furan analysis.
18. **On-facility Subsurface Soil Investigations:** Section 5.5.5 states that selected samples within contaminated areas will be analyzed for additional parameters. How will these samples be selected and using what basis for determination? In addition to SVOC, and EPH/VPH analysis,

all samples should be analyzed for metals and dioxins/furans. These are COPC at this site and should be fully characterized.

- 19. Off-facility Little Squalicum Creek Investigation:** Surface and subsurface soil analysis in the south slope, foot path and trench areas should include analysis of metals (in addition to the SVOC, EPH/VPH, and dioxin/furan analysis). Metals should also be included in the groundwater samples taken from the monitoring wells in this region. Sediment sample analysis should include analysis for EPH/VPH. (in addition to SVOC, metals, and dioxin/furan analysis).
- 20. Data Evaluation:** As mentioned in comment 15, when evaluating contaminant levels, the most conservative screening value should always be used (sec. 5.10). Surface water comparisons should be based on human health not Ecotox Screening Thresholds or Federal Ambient Water Quality Criteria (AWQC) for the Protection of Aquatic Organisms. There are AWQCs for human health that should be used instead. If the ecological screening values are lower, they may be used, but the human health values need to be considered. Similarly for sediments, human health needs to also be considered. MTCA B values for soils should be compared to the ecological screening values and the most protective value should be applied. Human health screening values must be considered.
- 21.** When conducting human health risk assessments, for the determination of residential and recreational exposures to carcinogens and non-carcinogens, values that are protective of children should be used. This includes evaluations that encompass child weight, inhalation rates, ingestion rates, and dermal absorption factors. The child assessment and these values are not mentioned in section 5.11.1.4.2.1. This child assessment needs to be included in the health evaluations.
- 22.** In Appendix C, Table 1, the trespasser/visitor scenario should be considered for current and future exposure to surface soil. Although trespasser/visitor exposures may be less than worker exposures, analysis should still be conducted to confirm that trespasser/visitor human health will be protected.

Field Sampling Plan:

- 23. Figure 4.9, Proposed Air Sampling Locations:** Does the treated wood, located in the north and south pole yards after treatment, emit fugitive emissions? If so, air sampling should be conducted on all sides of these yards, including the west and southwest sides. There are residential houses in this area, yet no proposed air monitoring in these regions.

The proposed air sampling plan (section 4.4.2) includes air sampling at the site perimeter, but not at off-site residences. Section 3.3.4.4 of the RI/FS, states that air samples taken at off-site residences (AS06 and AS07) exceeded the Region 9 risk based screening level for TCDD TEQs at least once. Further off-site residential air sampling and monitoring should be considered.

24. **Table 6-2, Sample Analytical Summary:** SVOC analysis will be conducted using EPA method 8270. For PAH analysis, EPA method 8310, which should have lower detection limits for PAHs might be more appropriate. As PAHs are a COPC, it would be wise to consider SVOC analysis that includes both methods 8270 and 8310.

Sampling and Quality Assurance Plans (SQAP) for Quarterly Groundwater Monitoring, and Off-Facility Residential and Background Surface Soil Sampling:

25. Are there standard operating procedures for the proposed surface soil sampling? They were not provided with the SQAP for surface soil sampling. Please be sure that proposed sampling will be carried out using EPA surface soil sampling guidelines.
26. Residential yard composite soil samples (sec. B2.2) should be biased to measure contaminants in areas of high usage within each yard. Having five predefined areas for sampling may not necessarily provide adequate protection if areas of high use are not sampled. A secondary entrance will not necessarily always be a high use area. There should be some leniency that allows for sampling in known high use areas such as defined play areas.

The contaminant level detected in a composite sample may not reflect the actual contaminant level in a particular hot-spot. It is important that hot-spots in high use areas are identified. Perhaps a second sample should be taken from the area of highest use at each residence. If contaminant levels in the composite sample approach health based screening values, or one-fifth of a health based screening value, this second sample from the high use area could then be analyzed. To be protective of human health, it is important to know the contaminant levels in specific areas where exposure is highest.

27. Off-facility residential soil samples should be analyzed for all the COPC. Section B4, provides methodology for the sampling of dioxins/furans, SVOCs, and metals. Soil analysis should also include methods which will detect VOCs (EPA method 8260) and petroleum hydrocarbons(WDOE EPH and VPH). SVOC analysis should include EPA method 8310 (as discussed in comment 24).
28. As additional information regarding this site becomes available, DOH would like the opportunity to conduct further evaluations.

References

The Oeser Company Superfund Site Remedial Investigation/Feasibility Study Work Plan. TDD:97-08-0007. Region 10, START, USEPA. March 1999.

The Oeser Company Superfund Site Remedial Investigation/Feasibility Study Field Sampling Plan. TDD:97-08-0007. Region 10, START, USEPA. April 1999.

Draft Sampling and Quality Assurance Plan Quarterly Groundwater Monitoring: the Oeser Company Superfund Site. TDD:97-08-0007. Ecology and Environment. February 19, 1998.

Draft Sampling and Quality Assurance Plan Off-Facility Residential and Background Surface Soil Sampling: the Oeser Company Superfund Site. TDD:97-08-0007. Ecology and Environment. March 1, 1999.

CERTIFICATION

This Health Consultation for the Oeser Company Superfund Site was prepared by the Washington Department of Health under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with approved methodology and procedures existing at the time the Health Consultation was initiated.

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The Division of Health Assessment and Consultation (DHAC), ATSDR, has reviewed this Health Consultation and concurs with its findings.

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